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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,506	07/06/2001	Alexei Nikolaevich Kotlikov	1202.019US1	4187

45346 7590 09/30/2005

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EXAMINER

ROSARIO, DENNIS

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/900,506

Applicant(s)

KOTLIKOV ET AL.

Examiner

Dennis Rosario

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2001 and 06 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

1. The amendment was received on July 14, 2005. Claims 1-46 are pending.

Specification

2. Due to the amendment, the objection to the specification is withdrawn.

Claim Objections

3. Due to the amendment, the objection to claims 9, 10, 15 and 21 is withdrawn.

Note that claim 31 was inadvertently omitted, and there is no objection for claim 31 since it has been corrected.

Response to Arguments

4. Applicant's arguments with respect to claims 1,29,31, and 39 on page 13-15 of the remarks have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3,5-10,12-36 and 39-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Barkan et al. (US Patent 6,014,471 A).

Regarding claim 1, Barkan et al. discloses a method of removing an object from a digital image derived from digital image data the method comprising:

- a) displaying the digital image (Fig. 1, num. 25);
- b) specifying a sub-region (Fig. 1,numerals 26, 28, 32, 34 represent values that specify a sub-region as shown in figure 2.) of the displayed digital image (Fig. 1, num. 25) that contains at least a part of the object (Fig. 2,num. 30) and another sub-region (Fig. 2,num. 42) of the displayed digital image (Fig. 1,num. 25) that does not contain the object (Fig. 2, num. 42 does not contain the object because 42 surrounds the object 30.);
- c) identifying the object to be removed ("RETOUCHED" in fig. 3A,num. 114) by categorizing the digital image data (Fig. 5,num. 208 categorizes or classifies pixels.) in the sub-region (Fig. 2) that contains at least a part of the object (fig. 2,num. 30) into an object region (Fig. 2,num. 30 indicates a region of pixels to be classified.) and a non-object region (fig. 2,num. 42 indicates a region of pixels to be classified.);
- d) modifying ("replacing" in col. 5, line 40) the digital image data (fig. 2,num. 30) of the object region to more closely resemble (via replacing fig. 2, num. 30 with...) the digital image data of the non-object (...fig. 2, num. 42 as mentioned in col. 5, lines 38-41.); and
- e) combining noise ("adding...noise" in col. 5, line 46 or "adding noise" in col. 5, line 53.) into the modified digital image data ("replaced" in col. 5, lines 45 and 53) of the object region (fig. 2,num. 30).

Regarding claim 2, Barkan et al. discloses the method of claim 1 wherein the digital image data (Fig. 2) is provided in a format that describes a perceptual color ("color...values" in col. 6, line 60 are inherently perceived to a person.) space (fig. 5, num. 50 represents a space or area that uses the color values.).

Regarding claim 3, Barkan et al. discloses the method of claim 2 wherein the perceptual color space is selected from perceptual color spaces having a lightness component ("luminance" in col. 6, line 58).

Regarding claim 5, Barkan et al. discloses the method of claim 2 wherein the object (figs. 1 and 2, num. 30) is a defect ("defect" in col. 4, line 43).

Claim 6 is rejected the same as claim 5. Thus, argument similar to that presented above for claim 5 is equally applicable to claim 6.

Regarding claim 7, Barton et al. discloses the method of claim 1 wherein the noise is estimated (via a "statistical variation" in col. 5, line 47 such as a "mean" in col. 7, line 1 where the mean is an approximate representation or estimate of a plurality of values.) from image data in a vicinity (Fig. 4, num. 54) of the object (Fig. 4, num. 52).

Claims 8-10 and 18 are rejected the same as claim 7. Thus, argument similar to that presented above for claim 7 is equally applicable to claims 8-18.

Regarding claim 12, Barkan et al. discloses the method of claim 1 wherein object regions (fig. 2,num. 30) and non-object regions (fig. 2,num. 42) are designated by application of a threshold value (fig. 5,num. 206 and fig. 7/1,num. 500 and 510)) for at least one component (Fig. 7/1: label "SIZE" component) of the digital image data for a pixel.

Claims 13 and 19 are rejected the same as claim 12. Thus, argument similar to that presented above for claim 12 is equally applicable to claims 13 and 19.

Regarding claim 14, Barkan et al. discloses the method of claim 1 wherein the modifying of the digital image data of the object region to more closely resemble the digital image data of the non-object region includes:

a) interpolation of non-defect data ("average...of...area 42" in col. 5, lines 43,44. Note that 42 is the non-defect data).

Claims 15,16,20,21 and 22 are rejected the same as claim 14. Thus, argument similar to that presented above for claim 14 is equally applicable to claims 15,16,20,21 and 22.

Regarding claim 17, Lawton et al. discloses the method of claim 1 wherein the noise is random noise ("random noise" in col. 5, line 46).

Claim 23 is rejected the same as claim 17. Thus, argument similar to that presented above for claim 17 is equally applicable to claim 23.

Regarding claims 24-27, Barkan et al. discloses a computer and software in the memory of a computer (as shown in fig. 1, num. 10 and 14, respectively.)

Regarding claim 28, Barkan et al. discloses the method of claim 1 wherein the displaying operation comprises:

a) displaying the digital image to a user (Fig. 1, num. 25 is a displayed image to a user interface 24 and 22; thus a user views a displayed image.), and

b) the specifying operation (Fig. 1, numerals 26, 28, 32, 34 represent values that specify a sub-region as shown in figure 2.) comprises:

b1) receiving input from the user (via interface fig. 1, num. 24 and 22) specifying a location (via the method of fig. 7/1) of a virtual frame (fig. 1, num. 30 has an associated virtual frame.) within the displayed digital image (fig. 1, num. 25),

c) the virtual frame (fig. 1, num. 30 has an associated virtual frame.) defining

c1) the sub-region (fig. 2) of the displayed digital image that contains the at least a part of the object (fig. 2, num. 30) and

c2) the sub-region of the displayed digital image that does not contain the object (fig. 2, num. 42).

Claim 29 is rejected the same as claims 1 and 24. Thus, argument similar to that presented above for claims 1 and 24 is equally applicable to claim 29.

Claim 30 is rejected the same as claim 28. Thus, argument similar to that presented above for claim 28 is equally applicable to claims 30.

Claim 31 is rejected the same as claims 1 and 28. Thus, argument similar to that presented above for claims 1 and 28 is equally applicable to claim 31.

Regarding claim 32, Barkan et al. discloses the method of claim 31 wherein the defect sub-region (fig. 2,num. 30) is adjacent (via making fig. 2,num. 40 "smaller" in col. 5, line 35. Currently, fig. 2,num. 40 is one pixel wide and to make fig. 2,num. 40 would result in fig. 2,num. 30 being adjacent to fig. 2,num. 42 provided that fig. 2,num. 42 is made "larger" in col. 5, line 35) to the non-defect sub-region (fig. 2,num. 42) in the digital image.

Regarding claim 33, Barkan et al. discloses the method of claim 31 wherein the array of interest (fig. 1, num. 30 has an associated virtual frame as shown in fig. 4 by the bold outer perimeter.) is aligned ("placed" in col. 6, line 47) with a column (note that fig. 4 inherently has a plurality of columns) of pixels (or a plurality dashed squares as shown in fig. 4) in the digital image.

Claims 34 is rejected the same as claim 33. Thus, argument similar to that presented above for claim 33 is equally applicable to claim 34.

Claims 35 and 36 are rejected the same as claim 28. Thus, argument similar to that presented above for claim 28 is equally applicable to claims 35 and 36.

Claim 39 is rejected the same as claim 30. Thus, argument similar to that presented above for claim 30 is equally applicable to claim 39.

Claims 40,41,42 are rejected the same as claims 32,33 and 34,respectively. Thus, argument similar to that presented above for claims 40,41,42 are equally applicable to claims 32,33 and 34, respectively.

Claims 43 and 44 are rejected the same as claim 28. Thus, argument similar to that presented above for claim 28 is equally applicable to claims 43 and 44.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barkan et al. (US Patent 6,014,471 A) in view of Hino (US Patent 5,956,015 A).

Regarding claim 4, Barkan et al. teaches the method of claim 2 wherein the perceptual color space (or "other values" in col. 6, line 62) is selected from the group consisting of CIE L*u*v* and CIE L*a*b* color spaces.

Barkan et al. does not teach the additional limitation of CIE L*u*v* and CIE L*a*b* color spaces, but does suggest "other values" in col. 6, line 62 can be used.

However, Hino teaches the additional limitation of a perceptual color space (A "CIE LAB" in column 3, lines 7,8 perceptual color space as suggested by Barkan et al.) that is selected (A "CIE LAB" in column 3, lines 7,8 perceptual color space is used over another space in column 3, lines 7,8.) from perceptual color spaces consisting of CIE L*u*v and CIE L*a*b color spaces (A "CIE LAB" in column 3, lines 7,8 perceptual color space is used over another space in column 3, lines 7,8: CIE LUV in column 3, line 2.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Barkan et al.'s teaching of "other values" in col. 6, line 62 with Hino's teaching of the CIE LAB color space, because the CIE LAB color space

compensates for visual effects of the human visual system in column 2, line 57 to column 3, line 4.

Claim 11 is rejected the same as claim 4. Thus, argument similar to that presented above for claim 11 is equally applicable to claim 4.

9. Claims 37,38,45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barkan et al. (US Patent 6,014,471 A) in view of Lawton et al. (US Patent 6,266,054 B1).

Barkan et al. does not disclose the limitation of claim 37, but does teach "plac[ing]" in col. 6, line 47 fig. 4,num. 54 "in accordance with...defects" in col. 6, lines 48,49 or "centering" in col. 6, line 55 which does suggest using a sequence of aligning steps in order to place fig. 4,num. 54 "in accordance with...defects" in col. 6, lines 48,49

However, Lawton et al. teaches wherein the virtual frame (Figs. 10 and 11,num. 68 is a virtual frame.) has a central axis (Figs. 10 and 11,num. 68 is a virtual frame that has an "axis" as shown in fig. 11.), the defect has a central axis (Figs. 10 and 11,num. 68 is a virtual frame that has an "axis" as shown in fig. 11 which goes through the defect or shaded area, thus the defect has the same axis as the virtual frame.), and further comprising:

a) rotating the virtual fame (Figs. 10 and 11,num. 68 is a virtual frame that is rotated as shown in fig. 4B.) to align the central axis of the virtual frame with the central axis of the defect (Figs. 10 and 11,num. 68 is a virtual frame that is rotated as shown in fig. 4B to align the central axis of the virtual frame 68 and the central axis of the defect that are aligned with each other as shown in fig. 11.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Barkan et al.'s teaching of placing fig. 4,num. 54 with Lawton et al.'s teaching of figure 4B, because Lawton et al. shows a means that was deficient in Barkan et al.'s teaching of placing and centering.

Regarding claim 38, Lawton et al. discloses the method of claim 37 wherein the rotating operation (Figs. 10 and 11,num. 68 is a virtual frame that is rotated as shown in fig. 4B.) defines a rotated virtual frame and comprises;

a) sub-pixel sampling individual pixels (Fig. 10 shows a bold grid that samples individual pixels in a sub-region of fig. 10,num. 68, hence sub-pixel sampling.) in the virtual frame (Fig. 10 shows a bold grid that samples individual pixels in a sub-region of fig. 10,num. 68, hence sub-pixel sampling.) to define a corresponding new pixel (Fig. 10 shows a bold grid that samples individual pixels in a sub-region of fig. 10,num. 68, hence sub-pixel sampling to define a corresponding new pixel represented as a black square of fig. 10.) within the rotated virtual frame (Fig. 10 shows a bold grid that samples individual pixels in a sub-region of fig. 10,num. 68, hence sub-pixel sampling to define a corresponding new pixel represented as a black square of fig. 10 within the rotated virtual frame as shown in fig. 4B.).

Claims 45 and 46 are rejected the same as claims 37 and 38,respectively. Thus, argument similar to that presented above for claims 37 and 38 are equally applicable to claims 45 and 46, respectively.

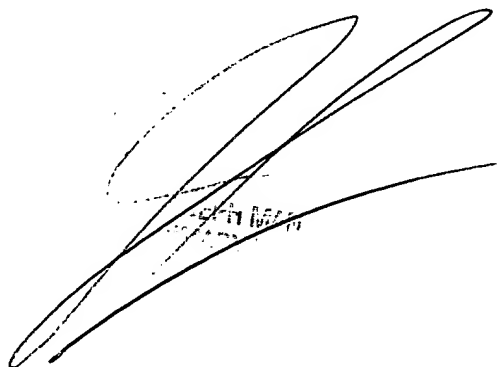
Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 6-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DR
Dennis Rosario
Unit 2621

A handwritten signature in black ink, appearing to be 'Dennis Rosario', is written over a faint, circular official stamp. The signature is fluid and stylized, with a large loop at the end.